

REMARKS/ARGUMENTS

Claims 17-22 and 24-26 are active in this application, claims 1-16 having been withdrawn and claim 23 having been cancelled. New claims 24-26 have been added and are supported by original claim 23. No new matter has been added by these amendment.

The present invention relates to an apparatus for injection foaming molding of a light alloy comprising a cylindrical member for receiving a melt of a light alloy containing a thickener and a blowing agent decomposing at a high temperature to generate a gaseous component. The melt is agitated by an agitating means provided rotatably in the inner portion to allow the thickener and blowing agent to disperse. The apparatus has a movable member provided to be protrudable and retreatable within the cylindrical member. The movable member forms a measuring part for measuring the melt in cooperation with the cylindrical member at the tip of the cylindrical member by retreating and injecting the melt with the gaseous component generated therein into a mold communicating with the measuring part by protruding. Importantly, the apparatus comprises a position retaining means for retaining the position of the movable member against an increase in internal pressure of the cylindrical member in the generation of the gaseous component so that, after the completion of the measurement, the melt can be retained in the pressured state to inhibit the foaming thereof.

As noted in the specification, this position retaining means is an important aspect of the present invention in order to provide an apparatus that can be used to perform injection foaming molding of a light alloy. Without the position retaining means, it becomes very difficult to perform the molding due to the pressure increase within the apparatus.

The claims stand rejected under 35 U.S.C. 102 (e)/(f)/(g) over either of US 6,840,302 or US 7,163,046 (both to Tanaka et al). Applicants note that neither of these references disclose or suggest the position retaining means as described and claimed by the present

invention. The position retaining means permits the pressure to increase due to generation of the gaseous component (something that occurs in injection foaming molding of the present invention, but **NOT** in the standard injection molding of light metal alloy of the Tanaka et al references). The present specification describes several embodiments used to provide the position retaining means, such as a solenoid valve provided in a hydraulic circuit of a hydraulic cylinder for protruding and retreating the movable member in order to be capable of interrupting the incoming and outgoing of oil to the hydraulic cylinder (see p. 13, lines 14-18 and Fig. 1) or in the embodiment of Fig. 2, the retaining means is a plunger that provide a pressure against the expansion of the molding material during the injection foaming molding (see p. 35, lines 19-20). Since neither of the Tanaka et al references disclose such a position retaining means, these references cannot anticipate the present invention. While the devices of Tanaka et al are certainly similar, without the position retaining means, they cannot meet the present claims (nor would they be particularly useful in actually performing the injection foaming molding of the present invention). Accordingly, these rejections should be withdrawn.

The claims stand rejected under 35 U.S.C. 103 over Takayama et al, alone or in combination with Kono. These references cannot render the present invention obvious, since neither of the references disclose or suggest the presence of (or even the need of) a position retaining means as required in the present invention. Firstly, neither Takayama et al nor Kono disclose anything about injection foaming molding. As noted above, there is a significant difference between standard injection molding and injection foaming molding, namely the creation of pressure within the molding material and within the apparatus due to the generation of the gaseous component of the foaming molding material. While it may be possible to injection foaming mold in one of the apparati of Takayama et al or Kono, it would be highly unlikely to be successful, or practical, since neither of these references disclose an

apparatus that would be able to withstand the internal increase in pressure within the molding material and mold, without backflow into the screw or delivery portion of the apparatus.

Only with the present invention apparatus, having a position retaining means to prevent the backflow and withstand the buildup of pressure, would such injection foaming molding be practical. Since neither of the recited references disclose anything with respect to such a position retaining means, neither can render the present invention obvious, either alone or in combination with one another.

The Examiner's comment regarding the use of a hydraulic circuit system of Takayama to move the injection screw does not take into account that the hydraulic circuit system of Takayama still does not have the position retaining means required by the present invention. As such, with the increase in pressure internally in the mold during generation of the gaseous component, there would be leakage from the mold back into the injection screw area of Takayama, which would create problems in getting satisfactory part generation in the molding process. Further, even if the apparatus of Takayama or Kono was capable of being used in injection foaming molding, without the presence of the position retaining means (i.e. one of the means described in the present specification or its equivalent as required by 35 U.S.C. 112, sixth paragraph), these references still cannot render the present invention obvious and the rejections should be withdrawn.

The rejection of the present claims for obviousness type double patenting over either of the '302 or '046 Tanaka et al patents is traversed on the grounds that none of the claims of either of these patents disclose or suggest the position retaining means of the present invention, a component that is required in the present claims in order to provide an apparatus for injection foaming molding. Further, the '302 patent is drawn to method claims for injection molding a light alloy. The Examiner has already restricted the present invention to hold the method claims for injection foaming molding as patentably distinct. How is it

possible for claims to a method of injection molding to then render the present invention claims to an apparatus obvious, particularly when there is nothing within the '302 patent or its claims related to injection foaming molding, or the need for a position retaining means?! Accordingly, these rejections should be withdrawn.

The Examiner has rejected claim 20 under 35 U.S.C. 112, second paragraph. However, the Examiner's rejection makes no sense, as it indicates that claims 20 is directed to the embodiment of Fig. 2 (which it is), but that claim 1 (?) from which claim 20 depends (claim 20 actually depends from claim 17) is directed to the embodiment of Fig. 2. Applicants note that claim 20 is dependent on claim 17. Claim 17 claims the apparatus, with a cylindrical member for receiving a melt of a light alloy. Claim 20 depends from claim 17 and further describes the cylindrical member specifying that it has two portions, namely a barrel for agitating the melt and a cylinder connected thereto for introducing and measuring the agitation melt, where the movable member is a plunger provided within the cylinder. Accordingly, Claim 20 describes a further embodiment and further limits claim 17, and is thus proper as claimed. Accordingly, this rejection is believed to be in error and should be withdrawn.

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Applicants submit that the application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read 'J. Derek Mason', is written over a horizontal line.

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